IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BOARD OF PATENT APPEALS AND INTERFERENCES

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In re Application of: :

: Examiner: R.V. Muralidar

Oliver LUZ et al. :

For: VEHICLE ELECTRICAL SYSTEM INCLUDING BATTERY STATE OF CHARGE DETECTION ON THE POSITIVE TERMINAL OF THE BATTERY :

Filed: October 16, 2003 : Art Unit: 2838

Serial No.: 10/688,533

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SUPPLEMENTAL/REPLACEMENT APPEAL BRIEF
PURSUANT TO 37 C.F.R. § 41.37

SIR:

In the above-identified patent application ("the present application"), the Final Office Action of December 30, 2008 included final rejections of claims 1 to 3, 6 to 8, 10 to 12, and 15 to 22. A Response After a Final Office Action was mailed on March 10, 2009, and an Advisory Action was mailed on March 25, 2009. Appellants filed a Notice Of Appeal on April 29, 2009 from the Final Office Action, so that the two-month appeal brief due date was June 29, 2009.

The Appeal Brief was filed June 29, 2009. A Notice of Non-compliance was mailed on July 24, 2009, so that the one-month response date is August 24, 2009.

It is understood for purposes of the appeal that any Amendments to date have already been entered by the Examiner, and that the Response After Final does not require entry since it included no amendments.

The previously filed Appeal Brief filed on June 29, 2009 in support of the appeal of the final rejections of claims 1 to 3, 6 to 8, 10 to 12, and 15 to 22 was deemed non-compliant in the Notification of Non-Compliant Appeal Brief (37 CFR 41.37) of July 24, 2009. In the

Notification: it was stated as to item 4(a) that "The summary of claimed subject matter section does not map the independent claims on appeal, to the specification by page and line number and to the drawings separately."

The Replacement Appeal Brief is believed to comply with all the requirements of Rule 41.37, and to address the issues raised in Notice.

As concerns the Non-Compliant Notification, it is noted that the "concise explanation" language of the Rule is like the "concise explanation" requirement of former Rule 37 CFR 1.192, and that the length of the concise explanation provided herein should therefore be acceptable, since it was acceptable under 37 CFR 1.192 and since it specifically defines the subject matter of the relevant claims involved in the appeal. AARON C. DEDITCH (reg. no. 33,865) has filed many appeal briefs in which the concise explanation has ultimately always been accepted by the Patent Office. The Office is encouraged to contact the undersigned if there are any questions as to the description of the claimed subject matter.

While it is believed that the Examiner's reading of the Rule is wrong (since there is no reference to "separately" as asserted), the "Summary of Claimed Subject Matter" Section has been rewritten as suggested, and it is therefore longer.

It is respectfully submitted that all matters have been corrected and that this Replacement Appeal brief complies with 37 C.F.R. 41.37, and specifically moots the stated reasons for deeming the original Appeal Brief mailed on June 29, 2009 as non-compliant, so that this Replacement Appeal Brief is compliant. Although no longer required by the rules, this Brief is submitted in triplicate as a courtesy to the Appeals Board.

It is respectfully submitted that the final rejections of claims 1 to 3, 6 to 8, 10 to 12, and 15 to 22 should be reversed for the reasons set forth below.

1. REAL PARTY IN INTEREST

The real party in interest in the present appeal is Robert Bosch GmbH ("Robert Bosch") of Stuttgart in the Federal Republic of Germany. Robert Bosch is the assignee of the entire right, title and interest in the present application.

2. RELATED APPEALS AND INTERFERENCES

There are no interferences or other appeals related to the present application, which "will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal".

3. STATUS OF CLAIMS

CLAIMS 4, 5, 9, 13 and 14 ARE CANCELED.

Claims 1 to 3, 6 to 8, 10 to 12, and 15 to 22 were rejected under 35 U.S.C. § 103(a) as unpatentable over U.S. Patent Application Publication No. 2004/0048142 ("Marusak"), in view of U.S. Patent No. 6,690,140 ("Larson"), in further view of U.S. Patent No. 5,739,737 ("Hatton").

Appellants therefore appeal from the final rejections of pending claims 1 to 3, 6 to 8, 10 to 12, and 15 to 22. A copy of all of the pending and appealed claims 1 to 3, 6 to 8, 10 to 12, and 15 to 22 is attached hereto in the Claims Appendix.

4. STATUS OF AMENDMENTS

In response to the Final Office Action mailed on December 16, 2008, Appellants filed a Response After A Final Office Action (with no amendments), which was mailed on March 5, 2009.

It is understood for purposes of the appeal that any Amendments to date have already been entered by the Examiner, and that the Response After Final does not require entry since it included no amendments.

5. SUMMARY OF CLAIMED SUBJECT MATTER

The concise explanation of the summary of the claimed subject matter is as follows, as described in the context of the present application.

As to claim 1, the specification and Figures disclose that *it is to a vehicle electrical system powered by a battery to supply a plurality of loads, including an integrated module positioned between a positive terminal of the battery and the plurality of loads.* In this regard, Figure 1 discloses a block diagram of a first exemplary embodiment in which the vehicle electrical system shown includes a battery 1 having positive and negative terminals. A module 2 is connected directly to the positive terminal of battery 1. (*See* specification, page 4, line 32 to page 5, line 2 and Fig. 1). Furthermore, loads V1, V2 and V3 are connected to the supply outputs of module 2. (*See* specification, page 5, lines 19 to 20 and Fig. 1).

As to claim 1, it also includes the feature in which the integrated module has an arrangement for detecting a state of charge of the battery and including a battery current measuring device. Module 2 has an integrated electronics unit, which includes a detecting arrangement 3 for detecting the state of charge of the battery. (See specification, page 5, lines 2 to 4, lines 34 to 35; and Fig. 1).

As to claim 1, it also includes the feature in which the integrated module has a terminal at which a generator is connectable. The terminal of battery master switch 6, which is remote from battery 1, is connected to an additional terminal of module 2, to which starter S of the motor vehicle is connected via a starter relay 11 and generator 13 of the motor vehicle is connected via an external fuse 12. (*See* specification, page 5, lines 25 to 29 and Fig. 1).

As to claim 1, it also includes the feature in which one of a battery disconnecting switch and a battery disconnecting fuse situated between the battery and the terminal. The fuses Si1 – Si4 are each connected to a supply output of module 2, a circuit breaker 8 is between fuse Si2 and the associated supply output of module 2, and a circuit breaker 9 is between fuse Si1 and the associated supply output of module 2. Battery master switch 6 and the two circuit breakers 8 and 9 are each activated by control unit 4 for power management and opened/closed during vehicle operation. (*See* specification, page 5, lines 25 to 32 and Fig. 1).

As to claim 1, it also includes the feature of a control unit for power management of the vehicle electrical system. Module 2 has an integrated electronics unit, which includes a

control unit 4 for the power management of the vehicle electrical system. (*See* specification, page 5, lines 4 to 5 and Fig. 1).

As to claim 1, it also includes the feature of at least one supply output for supplying power to the loads. Loads V1, V2 and V3 are connected to the supply outputs of module 2 assigned to fuses Si1, Si2 and Si3. (*See* specification, page 5, lines 19 to 20 and Fig. 1).

As to claim 1, it also includes the feature of a fuse module having an input, a plurality of supply outputs, and a plurality of fuses that connect the plurality of supply outputs to the input. Figure 6 shows a block diagram of an embodiment in which module 2 has only a single supply output to which a fuse box 15 is connected. The primary supply lead is subdivided into three load supply leads in fuse box 15, and a fuse Si1, Si2 or Si3 is situated in each of these load supply leads. (*See* specification, page 14, lines 25 to 32 and Fig. 6).

As to claim 1, it also includes the feature in which a terminal of the integrated module is connected to the input of the fuse module, and wherein the plurality of supply outputs of the fuse module provide power to the plurality of loads. Figure 6 shows a block diagram of an embodiment in which module 2 has only a single supply output to which a fuse box 15 is connected. The primary supply lead is subdivided into three load supply leads in fuse box 15, and a fuse Si1, Si2 or Si3 is situated in each of these load supply leads. Load V1 is connected to the first supply output, load V2 is connected to the second supply output, and load V3 is connected to the third supply output. (*See* specification, page 14, lines 25 to 34 and Fig. 6).

As to claim 1, it also includes the feature in which the integrated module further includes an electronics unit for at least one of regulation of the generator and diagnosis of the generator. Module 2 has an integrated electronics unit and a unit 5 for diagnosing and regulating a generator. (*See* specification, page 5, lines 5 to 6 and Fig. 1).

As to claim 1, it also includes the feature in which the integrated module further includes a detection arrangement for diagnosis of a state of at least one of the fuses. With the presently claimed subject matter, fuses may be provided between the positive terminal of the battery and the supply leads within the module leading to the loads, the state of the fuses being monitored and considered by the control unit for electrical power management. (*See* specification, page 3, lines 6 to 10 and Fig. 1). As an additional input signal, control unit 4 receives diagnostic signals obtained from fuses Si1, Si2, Si3 and Si4, which signals describe the state of the fuses. (*See* specification, page 6, lines 13 to 16 and Fig. 1).

As to claim 19, the specification and Figures disclose that *it is to a vehicle electrical system powered by a battery to supply a plurality of loads, including an integrated module positioned between a positive terminal of the battery and the plurality of loads.* In this regard, Figure 1 discloses a block diagram of a first embodiment in which the vehicle electrical system shown includes a battery 1 having positive and negative terminals. A module 2 is connected directly to the positive terminal of battery 1. (*See* specification, page 4, line 32 to page 5, line 2 and Fig. 1). Furthermore, loads V1, V2 and V3 are connected to the supply outputs of module 2. (*See* specification, page 5, lines 19 to 20 and Fig. 1).

As to claim 19, it also includes the feature in which the integrated module has an arrangement for detecting a state of charge of the battery and including a battery current measuring device. Module 2 has an integrated electronics unit, which includes a detecting arrangement 3 for detecting the charge state of the battery. (See specification, page 5, lines 2 to 4 and 34 to 35; Figure 1).

As to claim 19, it also includes the feature in which the integrated module has a terminal at which a generator is connectable. The terminal of battery master switch 6, (remote from battery 1) is connected to an additional terminal of module 2, to which starter S of the motor vehicle is connected via a starter relay 11 and generator 13 of the motor vehicle is connected via an external fuse 12. (*See* specification, page 5, lines 25 to 29 and Fig. 1).

As to claim 19, it also includes the feature in which one of a battery disconnecting switch and a battery disconnecting fuse situated between the battery and the terminal. The fuses Si1 – Si4 are each connected to a supply output of module 2, a circuit breaker 8 is between fuse Si2 and the associated supply output of module 2, and a circuit breaker 9 is between fuse Si1 and the associated supply output of module 2. Battery master switch 6 and the two circuit breakers 8 and 9 are each activated by control unit 4 for power management and opened/closed during vehicle operation. (*See* specification, page 5, lines 25 to 32 and Fig. 1).

As to claim 19, it also includes the feature of a control unit for power management of the vehicle electrical system. Module 2 has an integrated electronics unit, which includes a control unit 4 for the power management of the vehicle electrical system. (*See* specification, page 5, lines 4 to 5 and Fig. 1).

As to claim 19, it also includes the feature of at least one supply output for supplying power to the loads. Loads V1, V2 and V3 are connected to the supply outputs of module 2 assigned to fuses Si1, Si2 and Si3. (*See* specification, page 5, lines 19 to 20 and Fig. 1).

As to claim 19, it also includes the feature of a fuse module having an input, a plurality of supply outputs, and a plurality of fuses that connect the plurality of supply outputs to the input. Figure 6 shows a block diagram of an embodiment in which module 2 has only a single supply output to which a fuse box 15 is connected. The primary supply lead is subdivided into three load supply leads in fuse box 15, and a fuse Si1, Si2 or Si3 is situated in each of these load supply leads. (*See* specification, page 14, lines 25 to 32 and Fig. 6).

As to claim 19, it also includes the feature of a switch provided within the fuse module, in which the switch enables selective connection and disconnection between at least one of the plurality of fuses and an associated load. Control unit 4 may change the state of battery master switch 6, of circuit breaker 8, and of circuit breaker 9. If the control unit 4 detects the presence of a weak battery based on the battery state-of-charge signals, the control unit 4 disconnects the loads whose function is not essential to motor vehicle safety. (*See* specification, page 6, lines 18 to 26 and Fig. 1).

As to claim 19, it also includes the feature of a battery voltage sensor located outside the integrated module. The battery voltage u(t) and battery temperature _(t) are measured using external sensors, which provide information concerning the battery voltage or the battery temperature, respectively. (*See* specification, page 6, lines 6 to 9 and Fig. 1).

As to claim 19, it also includes the feature of a plurality of fuses. Module 2 has an integrated electronics unit, which includes fuses Si1 – Si4. (*See* specification, page 5, lines 2 to 8 and Fig. 1).

As to claim 19, it also includes the feature in which a terminal of the integrated module is connected to the input of the fuse module, and wherein the plurality of supply outputs of the fuse module provide power to the plurality of loads. Figure 6 shows a block diagram of an embodiment in which module 2 has only a single supply output to which a fuse box 15 is connected. The primary supply lead is subdivided into three load supply leads in fuse box 15, and a fuse Si1, Si2 or Si3 is situated in each of these load supply leads. Load V1 is connected to the first supply output, load V2 is connected to the second supply output, and load V3 is connected to the third supply output. (*See* specification, page 14, lines 25 to 34 and Fig. 6).

As to claim 19, it also includes the feature in which the integrated module further includes an electronics unit for at least one of regulation of the generator and diagnosis of the generator. Module 2 has an integrated electronics unit and a unit 5 for diagnosing and regulating a generator. (*See* specification, page 5, lines 5 to 6 and Fig. 1).

As to claim 19, it also includes the feature in which the integrated module further includes a detection arrangement for diagnosis of a state of at least one of the fuses. In accordance with the presently claimed subject matter, fuses may be provided between the positive terminal of the battery and the supply leads within the module leading to the loads, the state of the fuses being monitored and considered by the control unit for electrical power management. (*See* specification, page 3, lines 6 to 10 and Fig. 1). Control unit 4 receives diagnostic signals obtained from fuses Si1, Si2, Si3 and Si4, which signals describe the state of the particular fuses. (*See* specification, page 6, lines 13 to 16 and Fig. 1).

As to claim 19, it also includes the feature in which the arrangement for detecting the state of charge of the battery includes a battery voltage meter that cooperates with the battery voltage sensor. Battery state-of-charge detection unit 3 includes a battery current meter, a battery voltage meter and a battery temperature meter. From the measured battery current, the measured battery voltage and the measured battery temperature, a signal describing the battery state of charge is determined, which is provided to control unit 4 for electrical power management. (*See* specification, page 5, line 34 to page 6, line 13).

As to claim 19, it also includes the feature in which the arrangement for detecting the state of charge of the battery includes a battery current meter. Battery state-of-charge detection unit 3 includes a battery current meter. (*See* specification, page 5, lines 34 to 35).

As to claim 19, it also includes the feature in which the integrated module has a plurality of supply outputs. The fuses Si1 – Si4 are each connected to a supply output of module 2. (*See* specification, page 5, lines 10 to 11).

As to claim 19, it also includes the feature in which the plurality of fuses connect the plurality of supply outputs to the battery, so that power is provided via the plurality of supply outputs to the plurality of loads. Module 2 is connected directly to the positive terminal of battery 1. (*See* specification, page 5, lines 1 to 2 and Fig. 1). The fuses Si1 – Si4 are each connected to a supply output of module 2. (*See* specification, page 5, lines 10 to 11). Loads V1, V2 and V3 are connected to the supply outputs of module 2 assigned to fuses Si1, Si2 and Si3. (*See* specification, page 5, lines 19 to 20).

In summary, the presently claimed subject matter is to a vehicle electrical system powered by a battery to supply a plurality of loads, including an integrated module positioned between a positive terminal of the battery and the plurality of loads, the integrated module having an arrangement for detecting a state of charge of the battery and including a

battery current measuring device, and a terminal at which a generator is connectable; one of a battery disconnecting switch and a battery disconnecting fuse situated between the battery and the terminal; a control unit for power management of the vehicle electrical system; at least one supply output for supplying power to the loads; a fuse module having an input, a plurality of supply outputs, and a plurality of fuses that connect the plurality of supply outputs to the input; wherein a terminal of the integrated module is connected to the input of the fuse module, and wherein the plurality of supply outputs of the fuse module provide power to the plurality of loads; wherein the integrated module further includes an electronics unit for at least one of regulation of the generator and diagnosis of the generator; and wherein the integrated module further includes a detection arrangement for diagnosis of a state of at least one of the fuses. (See claim 1).

In summary, the presently claimed subject matter is to a vehicle electrical system powered by a battery to supply a plurality of loads, including an integrated module positioned between a positive terminal of the battery and the plurality of loads; the integrated module having an arrangement for detecting a state of charge of the battery and including a battery current measuring device, and a terminal at which a generator is connectable; one of a battery disconnecting switch and a battery disconnecting fuse situated between the battery and the terminal; a control unit for power management of the vehicle electrical system; at least one supply output for supplying power to the loads; a fuse module having an input, a plurality of supply outputs, and a plurality of fuses that connect the plurality of supply outputs to the input; a switch provided within the fuse module, wherein the switch enables selective connection and disconnection between at least one of the plurality of fuses and an associated load; a battery voltage sensor located outside the integrated module; and a plurality of fuses; wherein a terminal of the integrated module is connected to the input of the fuse module, and wherein the plurality of supply outputs of the fuse module provide power to the plurality of loads, wherein the integrated module further includes an electronics unit for at least one of regulation of the generator and diagnosis of the generator, wherein the integrated module further includes a detection arrangement for diagnosis of a state of at least one of the fuses, wherein the arrangement for detecting the state of charge of the battery includes a battery voltage meter that cooperates with the battery voltage sensor, wherein the arrangement for detecting the state of charge of the battery includes a battery current meter, wherein the integrated module has a plurality of supply outputs, and wherein

the plurality of fuses connect the plurality of supply outputs to the battery, whereby power is provided via the plurality of supply outputs to the plurality of loads. (See claim 19).

Finally, the appealed claims include no means-plus-function language and no step-plus-function claims, so that 37 C.F.R. 41.37(v) is satisfied as to its specific requirements for such claims, since none are present here. Also, the present application does not contain any step-plus-function claims because the method claims in the present application are not "step plus function" claims because they do not recite "a step for", as required by the Federal Circuit and as stated in Section 2181 of the MPEP.

6. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

Whether claims 1 to 3, 6 to 8, 10 to 12, and 15 to 22 under 35 U.S.C. § 103(a) are unpatentable over U.S. Patent Application Publication No. 2004/0048142 ("Marusak"), in view of U.S. Patent No. 6,690,140 ("Larson"), in further view of U.S. Patent No. 5,739,737 ("Hatton").

7. ARGUMENT

THE OBVIOUSNESS REJECTIONS OF CLAIMS 1 TO 3, 6 TO 8, 10 TO 12, & 15 TO 22

Claims 1 to 3, 6 to 8, 10 to 12, & 15 to 18

Claims 1 to 3, 6 to 8, 10 to 12, and 15 to 22 were rejected under 35 U.S.C. § 103(a) as unpatentable over U.S. Patent Application Publication No. 2004/0048142 ("Marusak"), in view of U.S. Patent No. 6,690,140 ("Larson"), in further view of U.S. Patent No. 5,739,737 ("Hatton").

To reject a claim under 35 U.S.C. § 103(a), the Office bears the initial burden of presenting a *prima facie* case of obviousness. *In re Rijckaert*, 9 F.3d 1531, 1532, 28 U.S.P.Q.2d 1955, 1956 (Fed. Cir. 1993). To establish *prima facie* obviousness, three criteria must be satisfied. First, there must be some suggestion or motivation to modify or combine reference teachings. *In re Fine*, 837 F.2d 1071, 5 U.S.P.Q.2d 1596 (Fed. Cir. 1988). This teaching or suggestion to make the claimed combination must be found in the prior art and not based on the application disclosure. *In re Vaeck*, 947 F.2d 488, 20 U.S.P.Q.2d 1438 (Fed. Cir. 1991).

Also, as clearly indicated by the Supreme Court in *KSR*, it is "important to identify a reason that would have prompted a person of ordinary skill in the relevant field to combine the [prior art] elements" in the manner claimed. *See KSR Int'l Co. v. Teleflex, Inc.*, 127 S. Ct. 1727 (2007). In this regard, the Supreme Court further noted that "rejections on obviousness cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness." *Id.*, at 1396. Second, there must be a reasonable expectation of success. *In re Merck & Co., Inc.*, 800 F.2d 1091, 231 U.S.P.Q. 375 (Fed. Cir. 1986). Third, the prior art reference(s) must teach or suggest all of the claim features. *In re Royka*, 490 F.2d 981, 180 U.S.P.Q. 580 (C.C.P.A. 1974).

Claim 1 relates to a vehicle electrical system powered by a battery to supply a plurality of loads. The vehicle electrical system of claim 1 includes an integrated module positioned between a positive terminal of the battery and the plurality of loads, the integrated module having a terminal at which a generator is connectable, and in which *the integrated module further includes an electronics unit for at least one of regulation of the generator and diagnosis of the generator.*

The Marusak, Larson, and Hatton references do not disclose (or even suggest) the feature in which *the integrated module further includes an electronics unit for at least one of regulation of the generator and diagnosis of the generator*, as provided for in the context of claim 1. However, the Marusak reference merely refers to measuring a condition of a battery and comparing that measured battery condition to maximum operating parameters of the battery. (Marusak, ¶ [0010]). The Marusak reference does not disclose diagnosing a generator, as provided for in the context of the claimed subject matter. Instead, the Marusak reference merely refers to diagnosing a battery, which the Final Office Action assumes is the same as diagnosing a generator.

The Final Office Action specifically admits at page 4 that the Marusak reference does not disclose or suggest the feature of "an electronics unit for regulation of the generator," but conclusorily asserts that the feature of "an electronics unit for at least one of diagnosis of the generator" is found in paragraphs 10, 29, and 43 of the Marusak reference (stating that "diagnos[is] of the battery ... is effectively the same as diagnosis of the generator"). To the extent that the Final Office Action may be relying on the inherency doctrine, inherency concerns anticipation and not obviousness.

In any event, it is respectfully submitted that to rely on inherency, the Office must provide a "basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristics necessarily flows from the teachings of the applied art." (See M.P.E.P. § 2112; emphasis in original; and see Ex parte Levy, 17 U.S.P.Q.2d 1461, 1464 (Bd. Pat. App. & Int'f. 1990)). Thus, the M.P.E.P. and the case law make clear that simply because a certain result or characteristic may occur in the prior art does not establish the inherency of that result or characteristic.

In this regard, the Final Office Action at page 9 specifically admits that "there are potential scenarios where a short circuit between the battery and the measuring device may result in [an] 'adverse change' . . . , and would consequently not be an accurate indication that the generator itself had malfunctioned." Thus, a measured battery condition <u>*does not*</u>

necessarily indicate a condition of a generator. For example, it is possible for a generator to be perfectly operational, while other components of a vehicle electrical system may cause adverse changes to the measured battery condition.

Accordingly, diagnosing a battery *may merely lead to possible, unvalidated assumptions regarding the condition of a generator, but clearly is not the same as diagnosing a generator*. The Final Office Action at page 9 asserts that although there are scenarios where the battery condition is not an accurate indication of the generator condition, "there are equally numerous scenarios (if not more so) where the adverse battery condition *could* be caused by" a condition of the generator. It is respectfully submitted that this is not the proper standard for determining whether the assertedly inherent characteristics necessarily flows from the teachings of the applied art. In this regard, it is respectfully submitted that a "bad battery" may simply be a battery that has run its useful life while the generator continues to function normally. Thus, it is not necessarily the case that a "bad battery" indicates a "bad generator" as asserted by the Final Office Action.

Moreover, the Final Office Action at page 10 merely asserts that "[o]ne of ordinary skill in the automotive arts unquestionably knows that a bad battery is an indication of a bad generator.", this is improper because rejections on obviousness cannot be sustained by mere conclusory statements, especially in view of the reasons provided above.

Further, the Final Office Action at page 10 also asserts that "it is entirely appropriate to measure the output of the generator in order to accomplish said diagnosing." However, it is respectfully submitted that the Marusak reference does not disclose this asserted measuring of the output of the generator. Also, attempting to diagnose or measure the output of the generator by measuring a battery condition is not the same as diagnosing the generator itself.

Therefore, contrary to the assertions of the Final Office Action, it is respectfully submitted that measuring a condition of a battery does not correspond to diagnosing a generator, as provided for in the context of the claimed subject matter Accordingly, the Marusak reference does not disclose (or even suggest) the feature in which *the integrated module further includes an electronics unit for at least one of regulation of the generator and diagnosis of the generator*, as provided for in the context of claim 1.

Further, the Larson reference also does not disclose (or even suggest) the feature in which the integrated module further includes an electronics unit for at least one of regulation of the generator and diagnosis of the generator, as provided for in the context of claim 1. In particular, the Larson reference does not disclose (or even suggest) regulation of a generator

and diagnosis of a generator. The Larson reference merely refers to a conventional alternator which provides a constant voltage D.C. output. (Larson, col. 3, lines 63 to 64; col. 5, lines 31 to 37; Figures 2 and 3, elements 15 and 115 (emphasis added)). Nowhere does the Larson reference indicate that its ESC regulates the alternator and diagnoses the alternator.

Instead, the Larson reference only states that "a controllable voltage regulator 21 [is] used for regulating the recharging of battery pack 25." (Larson, col. 3, lines 41 to 42). The Larson reference merely refers to a controllable voltage regulator that receives constant voltage from the alternator and controls the voltage sent to the battery for recharging. (Larson, col. 4, lines 25 to 40; col. 6, lines 47 to 49; and col. 6, lines 56 to 60). *Thus, the Larson reference merely refers to regulating the voltage supplied to the battery, but does not disclose regulating the alternator itself, which operates in a conventional manner by outputting a constant D.C. voltage.* Further, the Larson reference merely refers to diagnosing a battery, but does not disclose diagnosing the alternator itself. (Larson, col. 3, line 49).

As explained above, simply diagnosing a battery does not necessarily correspond to diagnosing the alternator itself, as the condition of the battery is not necessarily indicative of the condition of the alternator. Thus, nowhere does the Larson reference disclose an electronics unit for at least one of regulation of the generator and diagnosis of the generator, as provided for in the context of claim 1.

In addition, the Final Office Action (at pages 4 to 5) conclusorily asserts that the Larson reference discloses "regulat[ing] and diagnos[ing] the battery/pack by making adjustments to the generator output. Since the battery is directly connected to the generator, the generator output is also effectively diagnosed." As explained above, it is respectfully submitted that the Larson reference does not disclose this asserted measuring of the output of the generator. Also, attempting to diagnose or measure the output of the generator by measuring a battery condition is not the same as diagnosing the generator itself. Therefore, the Larson reference does not disclose (or even suggest) the feature in which *the integrated module further includes an electronics unit for at least one of regulation of the generator and diagnosis of the generator*, as provided for in the context of claim 1.

Moreover, the Larson reference specifically teaches away from this feature of claim 1. The Larson reference requires a constant voltage D.C. output from the alternator, and refers to several voltage regulators that separately modify the constant voltage received from the

alternator and supply each of low voltage, intermediate voltage, and high voltage systems independently of one another. (Larson, col. 3, lines 6 to 15). Thus, the Larson reference requires a constant voltage D.C. output from the alternator in order to be able to simultaneously provide modified voltage levels to each of the supplied systems. For this additional reason, it is respectfully submitted that the Larson reference does not disclose (or even suggest) the feature in which *the integrated module further includes an electronics unit for at least one of regulation of the generator and diagnosis of the generator*, as provided for in the context of claim 1.

In addition, the Hatton reference does not disclose (or even suggest) the feature in which *the integrated module further includes an electronics unit for at least one of regulation of the generator and diagnosis of the generator*, as provided for in the context of claim 1. As explained above, the Marusak and Larson references do not disclose (or even suggest) all of the features of claim 1. The Hatton reference does not cure - and is not asserted to cure - the critical deficiencies of the Marusak and Larson references.

Therefore, the proposed combination of the Marusak, Larson, and Hatton references does not render unpatentable claim 1 for at least the reasons provided above, so that claim 1 is allowable.

Claims 2, 3, 6 to 8, 10 to 12, and 15 to 18 depend from claim 1, and are therefore allowable for at least the same reasons as claim 1.

Withdrawal of the obviousness rejections of the claims is therefore respectfully requested.

Claims 19 to 22

Claim 19 includes features similar to those of claim 1 (as well as further features), and is therefore allowable for at least essentially the same reasons provided above, as are its dependent claims 20 to 22.

Additionally, claim 19 further provides that the vehicle electrical system powered by a battery to supply a plurality of loads is a system in which a terminal of the integrated module is connected to the input of the fuse module, and in which the plurality of supply outputs of the fuse module provide power to the plurality of loads, in which the integrated module further includes an electronics unit for at least one of regulation of the generator and diagnosis of the generator, in which the integrated module further includes a detection arrangement for diagnosis of a state of at least one of the fuses, in which the arrangement for

detecting the state of charge of the battery includes a battery voltage meter that cooperates with the battery voltage sensor, in which the arrangement for detecting the state of charge of the battery includes a battery current meter, in which the integrated module has a plurality of supply outputs, and in which the plurality of fuses connect the plurality of supply outputs to the battery, whereby power is provided via the plurality of supply outputs to the plurality of loads.

It is believed and respectfully submitted that any review of the applied references makes plain that they do not (whether taken alone or combined) disclose or suggest this combination of features. This is evidenced by the fact that the Final Office Action does not – and cannot – explain how the applied references disclose this combination of features as provided for in the context of the remainder of the claim 19.

Accordingly, claim 19 is allowable for these further reasons, as are its dependent claims 20 to 22.

Withdrawal of the obviousness objections of these claims is therefore respectfully requested.

As further regards each of the obviousness rejections, it is respectfully submitted that the cases of In re Fine, supra, and In re Jones, 21 U.S.P.Q.2d 1941 (Fed. Cir. 1992), make plain that the Office's generalized assertions that it would have been obvious to modify or combine the references do not properly support a § 103 rejection. It is respectfully submitted that those cases make plain that the Answer reflects a subjective "obvious to try" standard, and therefore does not reflect the proper evidence to support an obviousness rejection based on the references relied upon. In particular, the Court in the case of In re Fine stated that:

> The PTO has the burden under section 103 to establish a *prima facie* case of obviousness. It can satisfy this burden only by showing some objective teaching in the prior art or that knowledge generally available to one of ordinary skill in the art would lead that individual to combine the relevant teachings of the references. This it has not done. . . .
>
> **Instead, the Examiner relies on hindsight in reaching his obviousness determination. . . . One cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention.**

In re Fine, 5 U.S.P.Q.2d at 1598 to 1600 (citations omitted; italics in original; emphasis added). Likewise, the Court in the case of In re Jones stated that:

> Before the PTO may combine the disclosures of two or more prior art references in order to establish *prima facie* obviousness, there must be some suggestion for doing so, found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. . . .
>
> **Conspicuously missing from this record is any evidence, other than the PTO's speculation (if it be called evidence) that one of ordinary skill . . . would have been motivated to make the modifications . . . necessary to arrive at the claimed [invention].**

In re Jones, 21 U.S.P.Q.2d at 1943, 1944 (citations omitted; italics in original).

That is exactly the case here since it is believed and respectfully submitted that the Office Actions to date offer no evidence whatsoever, but only conclusory hindsight, reconstruction and speculation, which these cases have indicated does not constitute evidence that will support a proper obviousness finding. Unsupported assertions are not evidence as to why a person having ordinary skill in the art would be motivated to modify or combine references to provide the claimed subject matter of the claims to address the problems met thereby. Accordingly, the Office must provide proper evidence of a motivation for modifying or combining the references to provide the claimed subject matter.

Also, the Federal Circuit in the case of In re Kotzab has made plain that even if a claim concerns a "technologically simple concept" — which is not the case here — there still must be some finding as to the "specific understanding or principle within the knowledge of a skilled artisan" that would motivate a person having no knowledge of the claimed subject matter to "make the combination in the manner claimed," stating that:

> In this case, the Examiner and the Board fell into the hindsight trap. The idea of a single sensor controlling multiple valves, as opposed to multiple sensors controlling multiple valves, is a technologically simple concept. With this simple concept in mind, the Patent and Trademark Office found prior art statements that in the abstract appeared to suggest the claimed limitation. But, there was no finding as to the specific understanding or principle within the knowledge of a skilled artisan that would have motivated one with no knowledge of Kotzab's invention to make the combination in the manner claimed. In light of our holding of the absence of a motivation to combine the teachings in Evans, we conclude that the Board did not make out a proper prima facie case of obviousness in rejecting [the] claims . . . under 35 U.S.C. Section 103(a) over Evans.

In re Kotzab, 55 U.S.P.Q.2d 1313, 1318 (Fed. Cir. 2000) (emphasis added). Here again, there have been no such findings to establish that the features discussed above of the rejected

claims are met by the reference relied upon. As referred to above, any review of the reference, whether taken alone or combined, makes plain that the reference simply does not describe the features discussed above of the rejected claims.

Thus, the proper evidence of obviousness must show why there is a suggestion as to the reference so as to provide the subject matter of the claimed subject matter and its benefits.

In short, there is no evidence that the reference relied upon, whether taken alone or otherwise, would provide the features of the claims discussed above. It is therefore respectfully submitted that the claims are allowable for these reasons.

As still further regards all of the obviousness rejections of the claims, it is respectfully submitted that a proper *prima facie* case has not been made in the present case for obviousness, since the Office Actions to date never made any findings, such as, for example, regarding in any way whatsoever what a person having ordinary skill in the art would have been at the time the claimed subject matter of the present application was made. (See *In re Rouffet*, 47 U.S.P.Q.2d 1453, 1455 (Fed. Cir. 1998) (the "factual predicates underlying" a *prima facie* "obviousness determination include the scope and content of the prior art, the differences between the prior art and the claimed invention, and the level of ordinary skill in the art")). It is respectfully submitted that the proper test for showing obviousness is what the "combined teachings, knowledge of one of ordinary skill in the art, and the nature of the problem to be solved as a whole would have suggested to those of ordinary skill in the art", and that the Patent Office must provide particular findings in this regard — the evidence for which does not include "broad conclusory statements standing alone". (See *In re Kotzab*, 55 U.S.P.Q. 2d 1313, 1317 (Fed. Cir. 2000) (citing *In re Dembiczak*, 50 U.S.P.Q.2d 1614, 1618 (Fed. Cir. 1999) (obviousness rejections reversed where no findings were made "concerning the identification of the relevant art", the "level of ordinary skill in the art" or "the nature of the problem to be solved"))). It is respectfully submitted that there has been no such showings by the Office Actions to date or by the Advisory Action.

In fact, the present lack of any of the required factual findings forces both Appellants and any Appeals Board to resort to unwarranted speculation to ascertain exactly what facts underly the present obviousness rejections. The law mandates that the allocation of the proof burdens requires that the Patent Office provide the factual basis for rejecting a patent application under 35 U.S.C. § 103. (See *In re Piasecki*, 745 F.2d 1468, 1472, 223 U.S.P.Q. 785, 788 (Fed. Cir. 1984) (citing *In re Warner*, 379 F.2d 1011, 1016, 154 U.S.P.Q. 173, 177 (C.C.P.A. 1967))). In short, the Examiner bears the initial burden of presenting a proper

prima facie unpatentability case — which has not been met in the present case. (See *In re Oetiker*, 977 F.2d 1443, 1445, 24, U.S.P.Q.2d 1443, 1444 (Fed. Cir. 1992)).

In sum, claims 1 to 3, 6 to 8, 10 to 12, and 15 to 22 are allowable, and it is therefore respectfully requested that the rejections be reversed.

CONCLUSION

In view of the above, it is respectfully requested that the rejections of the finally rejected claims 1 to 3, 6 to 8, 10 to 12, and 15 to 22 be reversed, and that these claims be allowed as presented.

Respectfully submitted,

Dated: 8/11/2009

By: _____

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CLAIMS APPENDIX

1. A vehicle electrical system powered by a battery to supply a plurality of loads, comprising:

an integrated module positioned between a positive terminal of the battery and the plurality of loads, the integrated module having:

an arrangement for detecting a state of charge of the battery and including a battery current measuring device, and

a terminal at which a generator is connectable;

one of a battery disconnecting switch and a battery disconnecting fuse situated between the battery and the terminal;

a control unit for power management of the vehicle electrical system;

at least one supply output for supplying power to the loads;

a fuse module having an input, a plurality of supply outputs, and a plurality of fuses that connect the plurality of supply outputs to the input;

wherein a terminal of the integrated module is connected to the input of the fuse module, and wherein the plurality of supply outputs of the fuse module provide power to the plurality of loads;

wherein the integrated module further includes an electronics unit for at least one of regulation of the generator and diagnosis of the generator; and

wherein the integrated module further includes a detection arrangement for diagnosis of a state of at least one of the fuses.

2. The vehicle electrical system as recited in Claim 1, wherein the arrangement for detecting the state of charge of the battery includes a battery current meter.

3. The vehicle electrical system as recited in Claim 1, further comprising a battery voltage sensor located outside the integrated module, wherein the arrangement for detecting the state of charge of the battery includes a battery voltage meter that cooperates with the battery voltage sensor.

4. (Canceled).

5. (Canceled).

6. The vehicle electrical system as recited in Claim 1, further comprising:

a switch provided within the fuse module, wherein the switch enables selective connection and disconnection between at least one of the plurality of fuses and an associated load.

7. The vehicle electrical system as recited in Claim 1, further comprising:

a plurality of fuses;

wherein the integrated module has a plurality of supply outputs, and wherein the plurality of fuses connect the plurality of supply outputs to the battery, whereby power is provided via the plurality of supply outputs to the plurality of loads.

8. The vehicle electrical system as recited in Claim 7, further comprising:

a switch provided within the integrated module, wherein the switch enables selective connection and disconnection between at least one of the plurality of fuses and an associated load.

9. (Canceled).

10. The vehicle electrical system as recited in Claim 1, further comprising:

a relay;

wherein the integrated module has a terminal for connection to a starter of the vehicle, and wherein the relay is situated between the battery and the terminal of the integrated module.

11. The vehicle electrical system as recited in Claim 1, further comprising:

a communications interface for the integrated module;

wherein the control unit for power management is in contact with at least one of the plurality of loads of the vehicle electrical system and an additional control unit of the vehicle via the communications interface for the integrated module.

12. The vehicle electrical system as recited in Claim 11, wherein the communications interface is a bus interface.

13. (Canceled).

14. (Canceled).

15. The vehicle electrical system as recited in Claim 7, wherein the integrated module further includes a detection arrangement for diagnosis of a state of at least one of the fuses.

16. The vehicle electrical system as recited in Claim 1, wherein the integrated module further includes a DC-to-DC converter.

17. The vehicle electrical system as recited in Claim 1, wherein the integrated module further includes at least one circuit breaker.

18. The vehicle electrical system as recited in Claim 17, wherein the circuit breaker enables selective connection and disconnection of one of a single load and a plurality of loads from the integrated module.

19. A vehicle electrical system powered by a battery to supply a plurality of loads, comprising:

an integrated module positioned between a positive terminal of the battery and the plurality of loads, the integrated module having:

an arrangement for detecting a state of charge of the battery and including a battery current measuring device, and

a terminal at which a generator is connectable;

one of a battery disconnecting switch and a battery disconnecting fuse situated between the battery and the terminal;

a control unit for power management of the vehicle electrical system;

at least one supply output for supplying power to the loads;

a fuse module having an input, a plurality of supply outputs, and a plurality of fuses that connect the plurality of supply outputs to the input;

a switch provided within the fuse module, wherein the switch enables selective connection and disconnection between at least one of the plurality of fuses and an associated load;

a battery voltage sensor located outside the integrated module; and

a plurality of fuses;

wherein a terminal of the integrated module is connected to the input of the fuse module, and wherein the plurality of supply outputs of the fuse module provide power to the plurality of loads,

wherein the integrated module further includes an electronics unit for at least one of regulation of the generator and diagnosis of the generator,

wherein the integrated module further includes a detection arrangement for diagnosis of a state of at least one of the fuses,

wherein the arrangement for detecting the state of charge of the battery includes a battery voltage meter that cooperates with the battery voltage sensor,

wherein the arrangement for detecting the state of charge of the battery includes a battery current meter,

wherein the integrated module has a plurality of supply outputs, and

wherein the plurality of fuses connect the plurality of supply outputs to the battery, whereby power is provided via the plurality of supply outputs to the plurality of loads.

20. The vehicle electrical system as recited in Claim 19, wherein the integrated module further includes a detection arrangement for diagnosis of a state of at least one of the fuses, wherein the integrated module further includes a DC-to-DC converter, wherein the integrated module further includes at least one circuit breaker, and wherein the circuit breaker enables selective connection and disconnection of one of a single load and a plurality of loads from the integrated module.

21. The vehicle electrical system as recited in Claim 19, further comprising:

a switch provided within the integrated module, wherein the switch enables selective connection and disconnection between at least one of the plurality of fuses and an associated load.

22. The vehicle electrical system as recited in Claim 20, further comprising:

a relay; and

a communications interface for the integrated module;

wherein the integrated module has a terminal for connection to a starter of the vehicle, and wherein the relay is situated between the battery and the terminal of the integrated module,

wherein the control unit for power management is in contact with at least one of the plurality of loads of the vehicle electrical system and an additional control unit of the vehicle via the communications interface for the integrated module, and

wherein the communications interface is a bus interface.

EVIDENCE APPENDIX

Appellants have not submitted any evidence pursuant to 37 CFR Sections 1.130, 1.131 or 1.132, and do not rely upon evidence entered by the Examiner.

RELATED PROCEEDINGS INDEX

There are no interferences or other appeals related to the present application.